Church Gresley Infant and Nursery School
Sequence of Learning for Design and Technology

Early Years

The EYFS framework is structured very differently to the national curriculum as it is organised across seven areas of learning rather than subject areas. The skills taught across the EYFS will feed into national curriculum subjects, such as Design Technology. The table below details which statements from the 2020 Development Matters are prerequisite skills for computing within the national curriculum, and which statements from the age ranges for Three and Four-Year-Olds and Reception match to the National Curriculum programme of study for Design Technology.

Three and Four-Year-Olds	Personal, Social and Emotional Development	• Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen or one which is suggested to them.
	Physical Development	• Use large-muscle movements to wave flags and streamers, paint and make marks. • Choose the right resources to carry out their own plan. • Use one-handed tools and equipment, for example, making snips in paper with scissors.
	Understanding the World	• Explore how things work.
	Expressive Arts and Design	• Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. • Explore different materials freely, in order to develop their ideas about how to use them and what to make. • Develop their own ideas and then decide which materials to use to express them. • Create closed shapes with continuous lines, and begin to use these shapes to represent objects.

Reception	Physical Development		• Progress towards a more fluent style of moving, with developing control and grace. • Develop their small motor skills so that they can use a range of tools competently, safely and confidently. • Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor.
	Expressive Arts and Design		• Explore, use and refine a variety of artistic effects to express their ideas and feelings. • Return to and build on their previous learning, refining ideas and developing their ability to represent them. • Create collaboratively, sharing ideas, resources and skills.
End of Reception - ELG	Physical Development	Fine Motor	• Use a range of small tools, including scissors, paintbrushes and cutlery.
	Expressive Arts and Design	Creating with Materials	• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Share their creations, explaining the process they have used.

Purpose of study (from National Curriculum 2014)

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Aims

The national curriculum for design and technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study. Schools are not required by law to teach the example content in [square brackets].

Objectives – KS1

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Technical knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

Cooking and Nutrition

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

	Autumn	**Spring**	**Summer**
Nursery	Adult led activities… Task: Make cone paper hats and decorate with shapes. Skills: Rolling paper and fixing with tape. Talking about technique/process of making a cone with paper. Decorating and talking about how why decorations have been chosen. Task: Wrap boxes with paper. Skills: Cutting paper to size and fixing with tape. Talking about technique/process of wrapping. and talking about what techniques made wrapping easier / successful/ difficult. Task: Salt dough decorations and playdough 'cakes' using a mould, cutters and decoration. Skills: Explore decorations and cake designs through play. Talking about ideas for own decoration. Manipulating dough with hands, pressing, rolling, squashing, etc. Talking about technique/process being used to change shape of the dough. Using shape cutter tools. Talking about likes and dislikes with finished decoration. Why decorations have been chosen.	Adult led activities… Task: 2D Three Pig houses (straw, sticks, bricks) Skills: Explore homes through play, pictures, books and video clips. Talk about how they are built and their shapes. Talking about ideas for pig character homes. Size, materials, shapes, features. Creating 2D designs for each pig using the materials from the story. Talking about their finished design, the materials in each design, what might happen when the designs are built by the characters. and why. Exploring building a house using a variety of construction resources. Talking about successes and improvements needed. Children encouraged to explore ways and talk about how strong their building is. Task: Decorated gingerbread man. Skills: Threading with wool and string through pre-made holes around a shape. Use the term threading and talk about the finished affect.	Adult led activities… This can vary depending on the children's interests in the Summer Term

	Task: 3D Tube rockets. Skills: Explore rockets through play, pictures, books and video clips. Talk about how they work and their shapes. Talking about ideas for own rocket. Size, materials, shapes, features. Creating 2D rocket pictures with shapes. Selecting materials for purpose (range of reclaimed tube materials. Fixing using tape/glue/string/cutting. Talking about their finished model – likes / dislikes.		
Reception	Continuous provision to explore skills: 'Reclaimed material modelling' Skills: Cutting with scissors and patterned scissors. Using sticky tape to join. Using a hole punch and patterned punch. Using glue to join and decorate. Construction kits (Lego, blocks, Duplo, Knex, screws and bolts). Skills: Exploring how to join objects in different ways Marble run Pop-up and moving picture books. Encouraging children to discuss, explain and make changes throughout all of the above.	Continuous provision to explore skills: (See previous) Tasks **Model** fairy home with salt dough and found materials **Construct** Chinese new year decorations using cutting and folding skills. **Experiment with different textures** to make a Valentine's Day card **Model** a Gingerbread Man from playdough. **Construct** a moving Easter Card using cutting and joining skills. **Cook** bread. **(Experiment to create different textures.)**	Continuous provision to explore skills: (See previous) Tasks: **Construct** a Pirate den using material, pegs and resources found outside. **Construct** using joining skills a telescope. **Design and make** a flag – use cutting skills. **Use tools** including scissors to make an eye patch. **Construct** a boat from boxes. **Design, make and review** a shelter for a small toy.

	Tasks: **Decorate** cakes. **Model** a clay diva lamp using fingers. **Construct** a party hat using folding and cutting skills. **Construct** a Christmas card using cutting and sticking skills. **Model** a paper chain – join with sticking. **Cutting skills** – design and make snow flakes **Construct** Stickman using twigs and found materials **Model** face and 'Stickman' with playdough		

	Autumn	Spring	Summer
Year 1	Task: Design and make a clay pot gift after a visit to Sharp's Pottery in the local community Cross curricular links: Science, Art, Geography and History Skills: Explore a range of pottery during a visit to Sharp's pottery in the local community. Talk about how they were made and name the processes. Talk about how they work and name the mechanisms. Make: Build on skills acquired manipulating play-dough and salt-dough in YR, now with understanding and control to create the desired effect. Build on clay diwa lamp work in YR). During the visit manipulate clay with hands (roll, and press) and plastic clay tools (make marks inspired T.G. Green stripe and Mason Cash pattern). Create a 'mock up' for a final product back at school. Design a gift, a pot to hold a small item based on the design ideas of T.G. Green, Mason Cash and own ideas. Incorporating ways to use skills practised during visit. Make: Manipulate clay with hands (roll, and press) and plastic clay tools (make	Task: Design and make moving / sliding pictures for Mum. Cross curricular links: Art, RE, PSHE, English Skills: Explore moving pictures in books. Talk about how they work and name the mechanisms. Build on knowledge from books at home and EYFS. Make: Use scissors to cut paper. Manipulate paper to create a sliding picture. Create a mock up for the final product. Evaluate the process verbally. What worked/didn't work? How can we use these ideas to improve? Name the mechanisms used to make the picture move. Design a Mother's Day card with a 'growing flower' using a slider using newly acquired knowledge. Make: Repeat process of making a sliding picture with a purpose in mind. Use scissors to cut paper. Manipulate paper to create the sliding/growing flower. Evaluate the process verbally. What worked/didn't work? How can we use these ideas to improve?	Task: Deign and make a 'healthy root salad'. Cross curricular links: Maths, Science, PSHE Skills: Nutrition: Investigate and understand where food comes from. Understand that all food comes from plants or animals; understand that food has to be farmed, grown elsewhere (e.g. home) or caught; Name and sort vegetables into those that grow above and below the ground. Evaluate pre-made vegetable stir fry or root salads. Record ideas and discuss as a group. Feedback to class Design own vegetable salad based on likes and dislikes. Make own root salad following a recipe and using a variety of closely supervised cutting skills using a knife and fork method. Evaluate own salad. Likes and dislikes and anything we could improve. Record ideas and discuss as a group. Feedback to class

	marks inspired T.G. Green stripe and Mason Cash pattern). Paint finished pots ready to be given as a gift. Evaluate finished pots. Evaluate their own pot against the pottery provided as an example using photographs and discussion. Name the processes used in their own work.	Task: Design and make a wheeled vehicle toy. Cross curricular links: History, Science Explore wheeled toys. Talk about how they work and name the mechanisms. Build on knowledge from toys at home and EYFS continuous provision – vehicle toys, stickle brick play with wheels, k'nex, Meccano. Use again – but this time with a purpose in mind – looking for ideas for own designs. Design: A toy with wheels. Draw, label, list materials needed. Make: Reclaimed materials, wooden dowel and discs, fixing methods for base. Encourage ongoing evaluation and place emphasis on making changes to improve the finished product. Discuss what worked/didn't work? How can we use these ideas to improve?	

	Autumn	Spring	Summer
Year 2	Task: Design and make 'healthy fruit and savoury kebabs'. Cross curricular links: Science, PSHE Skills: Design Recap principles of a healthy and varied diet and understanding of where food comes from. Build on knowledge and extend to looking at fruit and vegetables from around the world. Name and sort foods into the five groups. Understand that everyone should eat at least five portions of fruit and vegetables every day and start to explain why. Use their prior knowledge from Y1 - healthy root salad, to design a healthy fruit and savory kebab; Children design and explain how their kebabs will look and be made through talking and annotated drawings; Make: Children aim to work independently. Using the claw or bridge cutting and chopping skills. Evaluate against their own design criteria. Identify strengths and where improvements could be made.	Task: Design and make a puppet for a puppet show. Cross curricular links: English, Art Skills: Explore a variety of puppets (finger, stick, hand, string, etc.). Talk about how they work, name the mechanisms and materials used. Build on knowledge from playing with puppets at home and EYFS. Design a felt hand puppet. Children design and explain how their puppets will look and be made through talking and annotated drawings; Make: Use scissors to cut felt. Following a pattern Use a needle and thread to sew felt and add detail. Build on weaving and threading skills in EYFS. Evaluate against their own design criteria. Identify strengths and where improvements could be made. Name the processes used. Task: Design and make a model Tudor house.	Task: Design and make an African mask. Cross curricular links: Geography, History, Art Design and make an African mask. Choose and use appropriate finishing techniques based on own ideas. Skills: Explore a variety of masks (stick, elastic, glasses, paper, card, fabric, etc.) including traditional African masks. Talk about how they work, name the techniques and materials used. Build on knowledge from playing with masks at home and EYFS. Design a mask using preferred techniques and materials. Children design and explain how their masks will look and be made through talking and annotated drawings using a computer program. Make: Create a 'mock up' which can be used as a stencil for the original product. Use scissors to cut chosen material. Use techniques to cut holes (build on skills from EYFS and Year 1). Children may have chosen to fix masks to a stick, punch holes in the correct place for string or elastic, fix glasses to the reverse, etc.

	Task: Design and make labels, wrapping paper, box and chocolate for a gift after a trip to Cadbury World. Cross curricular links: History, Geography, Science, Maths, Art Skills Explore a range of packaging. Take the packaging apart and look at the shape of structures, how it's been joined. Ask why certain shapes and joins have been used depending on the content, (Part of the exploration process will take place at Cadbury World). Build simple 'mock ups' exploring how they can be made stronger, stiffer and more stable). Using the ideas… Design a box for chocolates. Children to draw, label and list materials and equipment needed. Make: Create a box which has sections for chocolate inside. Folding and fixing card using a variety of techniques. As the children work, encourage them to identify strengths and possible changes they might make to refine their existing design. Start to understand that the iterative process sometimes involves repeating different stages of the process. Evaluate their products and ideas against their simple design criteria.	Cross Curricular Links: History, Science, Maths, Geography Skills Explore homes past and present. Look at materials, shapes, design features. Investigate how they built. Look at joining methods. Explore structures with Lego, stickle bricks, k'nex, wooden blocks. Polydron. (Build on knowledge and skills from EYFS and home). Design a Tudor home. Draw and label designs. Discuss designs and how they will be made. Incorporate design software within computing. Make Tudor homes with an L brace join. Make a 'mock-up' with paper. Evaluate strengths and weakness of design. Make adjustments Make final model with card. Measure pieces of card. Use stencils. Evaluate the materials and structures. Discuss / compare to mock-up. Critique own and others models. Identify strengths and challenges. What was successful? What would we change?	Evaluate against their own design criteria. Identify strengths and where improvements could be made. Name the processes used. Task: Design and make a pop-up picture. Cross curricular links: Art, English Skills: Explore pop-up pictures in books. Talk about how they work and name the mechanisms. Build on knowledge from books at home, EYFS and Year 1 Make: Use scissors to cut paper. Manipulate paper to create a simple pop-up picture. Create a mock up for the final product. Evaluate the process verbally. What worked/didn't work? How can we use these ideas to improve? Name the mechanisms used to make the picture pop-up. Design a picture with a pop-up picture for a story of child's choicer using newly acquired knowledge.

	Task: Design and make a wrapper for the chocolate box. Explore a range of wrapping. Discuss the material used and its purpose. Talk about the appearance and how it has been created. How does one brand packaging manage to make all of their wrappers look exactly the same? (Part of the exploration process will take place at Cadbury World). Design: Draw and label designs. Make: Use an art computing program to create their wrapper. Encourage children to use their design and discuss any changes. Children to save and print multiple copies. Evaluate their products and ideas against their simple design criteria.		Make: Repeat process of making a pop-up picture with a purpose in mind. Use scissors to cut paper. Manipulate paper to create the pop-up effect. Evaluate their products and ideas against their simple design criteria.

Design Technology in Key Stage 2

What will our children go on to learn at Pennine Way?

Key stage 2

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

When designing and making, pupils should be taught to:

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.

Cooking and Nutrition

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Year 3
Task: Design and make a cool drink Cross Curricular Links English, Maths, Science, Computing Skills Explore a variety of cool drinks including tasting and looking at their labels and adverts. Talking about ingredients and nutrition. (This will build on knowledge from making a salad in Year 1 and fruit kebabs in Year 2). Design the recipe for their own cool drink Make their cool drink – Independently crush, grate, peel and whisk. Evaluate the taste, nutritional value, cost and appeal of drink for a customer using a set criterion. Task: Design and make a photo frame Cross Curricular Links Art, Maths, Science Skills Explore how objects 'stand up'. (This will build on Year 2 pop-up pictures). Experiment with various methods to join and maximise strength of paper. Practise measuring and cutting card to make a prototype. Design their own photo-frame. Make their frame using the skills explored. Evaluate against a set criterion.